

Fenwick

Fenwick Overview

Volunteers monitored Lake Fenwick in 1994 -1995, and again in 2001 and 2003-2004. The data indicate that this lake in the city of Kent is moderate to high in primary productivity (mesotrophic - eutrophic) with good to fair water quality. Kent has run a program of artificial aeration of the deep water for a number of years to limit internal phosphorus recycling.

Lake Fenwick has a public access boat ramp next to the city park. Brazilian elodea has established a large population in the lake, and monitoring for other noxious aquatic weeds should be continued.

Physical Parameters

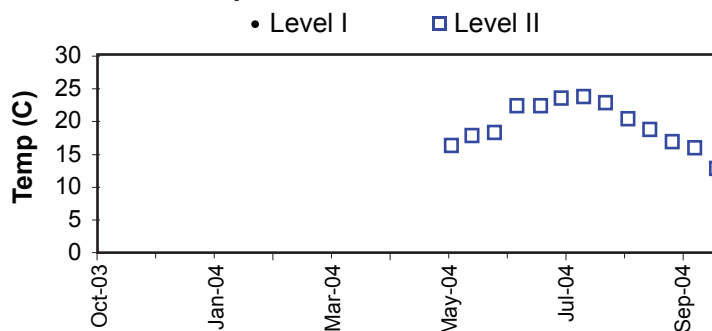
The Secchi transparency during the sampling season ranged between 2.5 and 4.0 m, averaging 3.3 m which was in the mid range for small lakes monitored in 2004. Surface water temperatures reached 23.4 degrees Celsius in summer, placing it in the lower range of the recorded maxima for the group.

There were no precipitation or water level records for the water year.

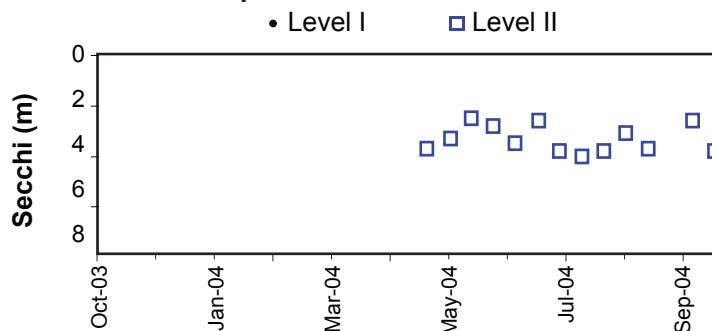
Nutrient Analysis and TSI Ratings

Both total nitrogen and total phosphorus remained relatively stable through the sampling period with some minor variations. The N:P ratio ranged from 15 to 35, averaging 27, with the majority of the samples suggesting moderately poor conditions for bluegreen growth.

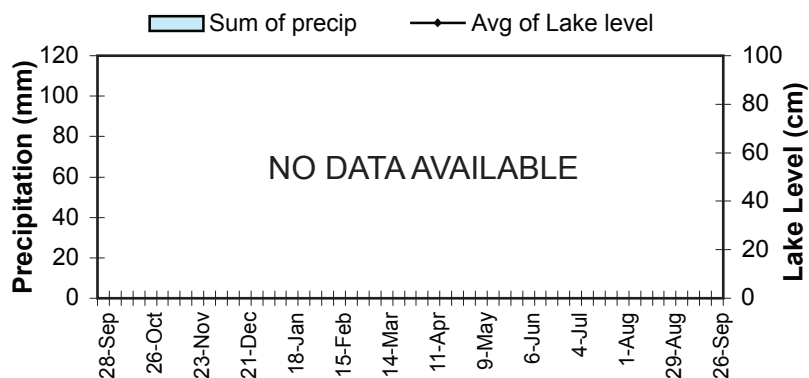
Lake Temperature



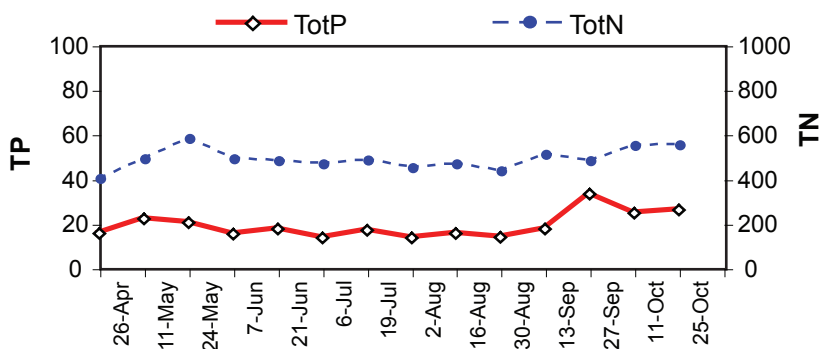
Secchi Depth



Lake Level and Precipitation



Nutrient Analysis



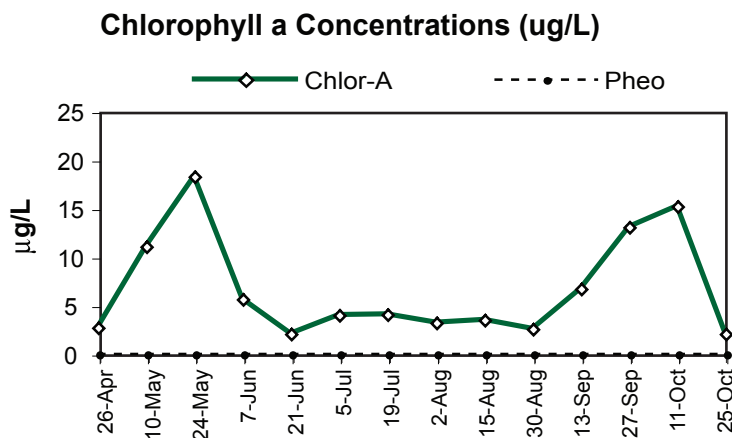
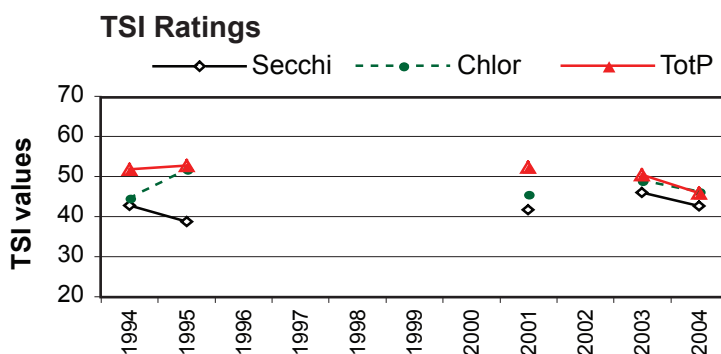
Profile data indicated that thermal stratification was present but possibly not very strong, accompanied by a small phosphorus increase in the deep water in August. Chlorophyll data showed that algae were most abundant in the upper water column in May, but higher concentrations were found in the mid depth of the water column in late August.

The 2004 TSI values were all lower than in 2003 and placed the lake in the middle of the mesotrophic range. They were close together as they also were in 2003, unlike earlier years.

Chlorophyll Concentrations and Algae

Chlorophyll peaked in May and again in early October. The phytoplankton species were dominated throughout the sampling period by the bluegreen *Aphanizomenon flos-aquae*. Other common algae included a variety of cryptophytes such as *Rhodomonas*, the chrysophyte *Dinobryon*, and the diatom *Aulacoseira tenuissima*.

Date	Secchi	depth-m	degC	Chlor-A	TP µg/L	TN µg/L
5/24/04	2.5	1	17.5	18.30	20.6	586
		4	10.5	9.61	35.2	545
		8	10.0	3.74	38.6	485
8/30/04	3.1	1	20.0	2.60	13.9	441
		4		25.50	67.3	643
		7	15.0	5.50	95.3	601



Common Algae

	Group
<i>Aphanizomenon flos-aquae</i>	Cyanobacteria
<i>Rhodomonas</i> sp.	Cryptophyta
<i>Dinobryon</i> sp	Chrysophyta

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2004 Level I Data not available

2004 Level II Data

Date (2004)	Temp (°C)	Secchi (m)	Chl-a (µg/l)	TP (µg/l)	TN (µg/l)	Algae Obsv.	N:P	Calculated TSI		
								Secc	chl-a	TP
26-Apr	NR	3.7	2.72	15.6	408	2	26	41.1	40.4	43.8
11-May	16.0	3.3	11.10	22.2	496	3	22	42.8	54.2	48.9
24-May	17.5	2.5	18.30	20.6	586	3	28	46.8	59.1	47.8
7-Jun	18.0	2.8	5.61	15.3	497	3	32	45.1	47.5	43.5
21-Jun	22.0	3.5	2.08	17.8	486	2	27	41.9	37.8	45.7
6-Jul	22.0	2.6	4.01	13.6	472	3	35	46.2	44.2	41.8
19-Jul	23.2	3.8	4.09	17.1	489	3	29	40.7	44.4	45.1
2-Aug	23.4	4.0	3.20	13.8	455	2	33	40.0	42.0	42.0
16-Aug	22.5	3.8	3.52	15.8	474	2	30	40.7	42.9	44.0
30-Aug	20.0	3.1	2.56	13.9	441		32	43.7	39.8	42.1
13-Sep	18.4	3.7	6.72	17.7	515	2	29	41.1	49.3	45.6
27-Sep	16.6	NR	13.10	33.2	488	2	15		55.8	54.7
11-Oct	15.6	2.6	15.20	24.9	556	3	22	46.2	57.3	50.5
25-Oct	12.5	3.8	2.10	26.2	558	2	21	40.7	37.8	51.3
	Temp (°C)	Secchi (m)	Chl-a (µg/l)	TP (µg/l)	TN (µg/l)	Algae	N:P	Calculated TSI		
								Secc	chl-a	TP
Mean	19.1	3.3	6.7	19.1	494.4	2.5	27	42.9	46.6	46.2
Median	18.4	3.5	4.1	17.4	488.5	2	29	41.9	44.3	45.3
Min	12.5	2.5	2.1	13.6	408.0	2	15	40.0	37.8	41.8
Max	23.4	4.0	18.3	33.2	586.0	3	35	46.8	59.1	54.7
Count	13	13	14	14	14	13	14	13	14	14

TSI Average = 45.2